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=> s kulbe, ?/au
L1 962 KULBE, ?/AU

=> s l1 and cofactor
L2 38 L1 AND COFACTOR

=> dup rem l2
PROCESSING COMPLETED FOR L2
L3 15 DUP REM L2 (23 DUPLICATES REMOVED)

=> d 1-10

L3 ANSWER 1 OF 15 SCISEARCH COPYRIGHT 2003 ISI (R) DUPLICATE 1
AN 2001:182142 SCISEARCH
GA The Genuine Article (R) Number: 402XU
TI Continuous enzymatic regeneration of redox mediators used in biotransformation reactions employing flavoproteins
AU Baminger U; Ludwig R; Galhaup C; Leitner C; **Kulbe K D**; Haltrich D (Reprint)
CS Agr Univ Vienna, Inst Food Technol, Div Biochem Engn, Muthgasse 18, A-1190 Vienna, Austria (Reprint); Agr Univ Vienna, Inst Food Technol, Div Biochem Engn, A-1190 Vienna, Austria
CYA Austria
SO JOURNAL OF MOLECULAR CATALYSIS B-ENZYMATIC, (22 JAN 2001) Vol. 11, No. 4-6, Sp. iss. SI, pp. 541-550.
Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS.
ISSN: 1381-1177.
DT Article; Journal
LA English
REC Reference Count: 30
ABSTRACT IS AVAILABLE IN THE ALL AND IALL FORMATS

L3 ANSWER 2 OF 15 MEDLINE DUPLICATE 2
AN 1998149716 MEDLINE
DN 98149716 PubMed ID: 9490072
TI A multistep process is responsible for product-induced inactivation of glucose-fructose oxidoreductase from Zymomonas mobilis.
AU Furlinger M; Haltrich D; **Kulbe K D**; Nidetzky B
CS Division of Biochemical Engineering, Institute of Food Technology, Universitat fur Bodenkultur Wien (BOKU), Vienna, Austria.
SO EUROPEAN JOURNAL OF BIOCHEMISTRY, (1998 Feb 1) 251 (3) 955-63.
Journal code: 0107600. ISSN: 0014-2956.
CY GERMANY: Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199803
ED Entered STN: 19980407
Last Updated on STN: 19980407
Entered Medline: 19980323

L3 ANSWER 3 OF 15 MEDLINE DUPLICATE 3
AN 97439719 MEDLINE
DN 97439719 PubMed ID: 9307027
TI alpha-1,4-D-glucan phosphorylase of gram-positive Corynebacterium callunae: isolation, biochemical properties and molecular shape of the enzyme from solution X-ray scattering.
AU Weinhausel A; Griessler R; Krebs A; Zipper P; Haltrich D; **Kulbe K D**; Nidetzky B
CS Division of Biochemical Engineering, Institute of Food Technology, Universitat fur Bodenkultur (BOKU), Muthgasse 18, A-1190 Vienna, Austria.
SO BIOCHEMICAL JOURNAL, (1997 Sep 15) 326 (Pt 3) 773-83.
Journal code: 2984726R. ISSN: 0264-6021.
CY ENGLAND: United Kingdom
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199710
ED Entered STN: 19971024
Last Updated on STN: 19980206
Entered Medline: 19971016

L3 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AN 1996:48612 HCAPLUS
DN 124:110966
TI Carry out coenzyme conversions economically
AU Nidetzky, Bernd; Haltrich, Dietmar; **Kulbe, Klaus D.**
CS Inst. Food Technology, Univ. Agriculture, Vienna, Austria
SO CHEMTECH (1996), 26(1), 31-6

CODEN: CHTEDD; ISSN: 00[redacted]703
PB American Chemical Society
DT Journal
LA English

L3 ANSWER 5 OF 15 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AN 1992-09449 BIOTECHDS
TI **Cofactor** regeneration in continuous enzymatic synthesis; coenzyme regeneration in charged ultrafiltration membrane enzyme reactor (conference paper)
AU **Kulbe K D**
LO Fraunhofer-Institut fuer Grenzflaechen- und Bioverfahrenstechnik, Nobelstrasse 12, D-W 7000 Stuttgart 80, Germany.
SO Biochem.Eng.Stuttgart; (1991) 18-25
DT Journal
LA English

L3 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AN 1992:104336 HCAPLUS
DN 116:104336
TI **Cofactor** regeneration in continuous enzymic synthesis
AU **Kulbe, K. D.**
CS Fraunhofer-Inst. Grenzflaechen- Bioverfahrenstech., Stuttgart, D-W 7000/80, Germany
SO Biochem. Eng.--Stuttgart, [Proc. Int. Symp.], 2nd (1991), Meeting Date 1990, 18-25. Editor(s): Reuss, Matthias. Publisher: Fischer, Stuttgart, Fed. Rep. Ger.
CODEN: 57KIAI
DT Conference; General Review
LA English

L3 ANSWER 7 OF 15 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AN 1990-08991 BIOTECHDS
TI Continuous coenzyme dependent stereoselective synthesis of sulcatol by alcohol-dehydrogenase; from Thermoanaerobium brockii; stereospecific pheromone production; NADP coenzyme regeneration; potential large-scale hydrophobic fine chemical production
AU Roethig T R; **Kulbe K D**; Bueckmann F; Carrea G
LO Fraunhofer-Institut fuer Grenzflaechen- und Bioverfahrenstechnik, Nobelstrasse 12, D-7000 Stuttgart 80, Germany.
SO Biotechnol.Lett.; (1990) 12, 5, 353-56
CODEN: BILED3
DT Journal
LA English

L3 ANSWER 8 OF 15 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AN 1992-00939 BIOTECHDS
TI Simultaneous synthesis of sorbitol and gluconic acid by glucose-fructose-oxidoreductase; and gluconolactonase; purification from Zymomonas mobilis (conference paper)
AU Haug I; Heinzler A; **Kulbe K D**
LO Fraunhofer-Institut fuer Grenzflaechen- und Bioverfahrenstechnik, Nobelstrasse 12, D-7000 Stuttgart-80, Germany.
SO DECHEMA Biotechnol.Conf.; (1990) 4, Pt.A, 289-92
DT Journal
LA English

L3 ANSWER 9 OF 15 SCISEARCH COPYRIGHT 2003 ISI (R) DUPLICATE 5
AN 91:96438 SCISEARCH
GA The Genuine Article (R) Number: EX282
TI A CONTINUOUS ENZYME MEMBRANE REACTOR RETAINING THE NATIVE NICOTINAMIDE **COFACTOR** NAD(H)
AU HOWALDT M W (Reprint); **KULBE K D**; CHMIEL H
CS CALTECH, DEPT CHEM ENGN, PASADENA, CA, 91125; FRAUNHOFER INST GRENZFLACHEN & BIOVERFAHRENSTECH, W-7000 STUTTGART, GERMANY
CYA USA; GERMANY
SO ANNALS OF THE NEW YORK ACADEMY OF SCIENCES, (1990) Vol. 589, No. MAY, pp.

253-260.
DT Article; Journal
LA ENGLISH
REC Reference Count: 10

L3 ANSWER 10 OF 15 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AN 1992-01080 BIOTECHDS
TI Modelling of kinetics of alcohol-dehydrogenase from Thermoanaerobium brockii with continuous **cofactor** regeneration;
NADPH coenzyme regeneration by the coupled substrate approach;
S-sulcatol pheromone production (conference paper)
AU Roethig T R; Schmidt K; Chmiel H; **Kulbe K D**
LO Fraunhofer-Institut fuer Grenzflaechen- und Bioverfahrenstechnik, Nobelstr. 12, D-7000 Stuttgart 80, Germany.
SO DECHEMA Biotechnol.Conf.; (1990) 4, Pt.A, 155-158
DT Journal
LA English

=> d 4-6 ab

L3 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AB A method for coenzyme retention in continuous NAD(P)H-dependent synthesis is presented. A charged nanofiltration membrane that has a well-defined size exclusion slightly higher than the mol. mass of the **cofactor** is used to keep the coenzyme in the reactor, allowing efficient regeneration. In addn., because the membrane has acidic functional groups and NADH and NADPH are amphoteric mols. carrying a neg. net charge at pH values higher than 3, the electrostatic repulsion can be exploited for coenzyme retention. In an ideal situation, both the enzymes and the coenzymes are retained completely with the products and nonreacted substrates permeating freely. The technol. is demonstrated for prodn. of xylitol and mannitol.

L3 ANSWER 5 OF 15 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AB Some results of studies on continuous **cofactor** (coenzyme) regeneration were presented. The enzymatic synthesis of mannitol (or sorbitol) and gluconic acid from glucose-fructose mixtures was studied in a 70 ml charged ultrafiltration membrane enzyme reactor (ChUFER). At this scale, rejection coefficients for NADH of over 99% and cycle numbers of over 150,000 were achieved. The latter figure may reach over 500,000 by increasing enzyme concentrations. NADP(H) retention coefficients of over 99.9% were measured; coenzyme costs were therefore no longer an economical problem. This approach was applicable to the synthesis of sorbitol, xylitol, maltitol and some aromatic alcohols by using unspecific NAD(P)H-dependent aldose-reductase (EC-1.1.1.21) enzymes from Candida sp. The ChUFER concept was also suitable in some NADP-dependent steroid transformations. The ChUFER works well even in the presence of organic solvents. The ChUFER concept of coenzyme regeneration allows the use of all enzymes with their native coenzymes; there are no problems with immobilization yields and neither a decrease of Vmax nor an increase of Km can occur. (30 ref)

L3 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AB A review with 30 refs., mainly of the author's work on NADP-dependent carbohydrate transformations.

=> d 9 ab

L3 ANSWER 9 OF 15 SCISEARCH COPYRIGHT 2003 ISI (R) DUPLICATE 5

=> d 11-15

L3 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AN 1991:447678 HCAPLUS
DN 115:47678
TI Modeling of kinetics of alcohol dehydrogenase from Thermoanaerobium

brockii with continuous **factor** regeneration
AU Roethig, T. R.; Schmidt, K.; Chmiel, H.; **Kulbe, K. D.**
CS Fraunhofer-Inst. Grenzflaechen- Bioverfahrenstech., Stuttgart, D-7000/80, Germany
SO DECHEMA Biotechnology Conferences (1990), 4(Pt. A, Lect. DECHEMA Annu. Meet. Biotechnol., 8th, 1990), 155-8
CODEN: DBCOEU; ISSN: 0934-3792
DT Journal
LA English

L3 ANSWER 12 OF 15 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AN 1991-03231 BIOTECHDS
TI Charged membrane enzyme reactors for continuous regeneration of native coenzymes. II. Synthesis of hydrophobic compounds with NADP(H) dependent dehydrogenases;
S-sulcatol production by alcohol-dehydrogenase; 12-keto-cheno-deoxycholic acid production by 12-alpha-hydroxysteroid-dehydrogenase; NADPH coenzyme regeneration (conference paper)
AU Roethig T R; Schmidt K; Chmiel H; Hasenfratz H; **Kulbe K D**
LO Fraunhofer-Institut fuer Grenzflaechen- und Bioverfahrenstechnik, Nobelstrasse 12, D-7000 Stuttgart 80, Germany.
SO DECHEMA Biotechnol.Conf.; (1989) 3, Pt.B, 643-47
DT Journal
LA English

L3 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AN 1989:422086 HCAPLUS
DN 111:22086
TI Simultaneous conversion of glucose/fructose mixtures in a membrane reactor
AU Howaldt, Michael; Gottlob, Axel; **Kulbe, Klaus D.**; Chmiel, Horst
CS Fraunhofer Inst. Grenzflaechen- und Bioverfahrenstech., Stuttgart, D-7000, Fed. Rep. Ger.
SO Annals of the New York Academy of Sciences (1988), 542(Enzyme Eng. 9), 400-5
CODEN: ANYAA9; ISSN: 0077-8923
DT Journal
LA English

L3 ANSWER 14 OF 15 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AN 1989-05574 BIOTECHDS
TI Optimization of reactor performance for coenzyme dependent enzyme reactions: computer simulation and experiments;
coenzyme regeneration for glucose-dehydrogenase and mannitol-dehydrogenase in continuous stirred tank reactor and plug flow reactor (conference abstract)
AU Howaldt M W; Chmiel H; **Kulbe K D**
LO Fraunhofer-Institut fuer Grenzflaechen - und Bioverfahrenstechnik, Nobelstrasse 12, 7000 Stuttgart 80, Germany.
SO Eur.Congr.Biotechnol.; (1987) Vol.1, 257
DT Journal
LA English

L3 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2003 ACS
AN 1987:137030 HCAPLUS
DN 106:137030
TI Intrasequential **cofactor** regeneration in enzymatic synthesis, particularly when producing vitamin C
IN **Kulbe, Klaus D.**; Knopki, Gisela
PA Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung e.V., Fed. Rep. Ger.
SO PCT Int. Appl., 48 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 8604353	A1	19860731	WO 1986-EP24	19860122
W: JP, US				

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        RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE
    DE 3502141        A1   19861016       DE 1985-3502141  19850123
    DE 3502141        C2   19910829
    EP 209583         A1   19870128       EP 1986-901053   19860122
        R:  AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE
    JP 62501747       T2   19870716       JP 1986-500910   19860122
PRAI DE 1985-3502141       19850123
    WO 1986-EP24           19860122


=> s chufer
L4           2 CHUFER

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L4    ANSWER 1 OF 2  BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AN    1994-09980  BIOTECHDS
TI    Continuous synthesis of xylitol by NAD(P)H-linked aldose-reductase in a
      charged ultrafiltration membrane-enzyme reactor;
         xylitol production from xylose using Candida tenuis enzyme, with
         coenzyme regeneration using e.g. Candida boidinii formate-
         dehydrogenase (conference paper)
AU    Kulbe K D; Schmidt H; Schmidt K; Scholze H A
CS    Univ.Vienna-Agr.; Fraunhofer-Inst.
LO    Division of Biochemical Engineering, Institute of Food Technology,
      Universitaet fuer Bodenkultur Wien, Peter Jordan-Strasse 82, A-1190 Wien,
      Austria.
SO    Prog.Biotechnol.; (1992) 7, 565-72
      CODEN: PBITE3
DT    Journal
LA    English

L4    ANSWER 2 OF 2  BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AN    1992-09449  BIOTECHDS
TI    Cofactor regeneration in continuous enzymatic synthesis;
         coenzyme regeneration in charged ultrafiltration membrane enzyme
         reactor (conference paper)
AU    Kulbe K D
LO    Fraunhofer-Institut fuer Grenzflaechen- und Bioverfahrenstechnik,
      Nobelstrasse 12, D-W 7000 Stuttgart 80, Germany.
SO    Biochem.Eng.Stuttgart; (1991) 18-25
DT    Journal
LA    English


=> d 1, 2 ab

L4    ANSWER 1 OF 2  BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AB    A continuous process for the enzymatic production of xylitol from xylose
      was reported to be under development.  The NAD(P)H-linked
      aldose-reductase (ALR, EC-1.1.1.21) from Candida tenuis CBS 4435 was
      purified to a specific activity of 32 U/mg by salt precipitation and
      chromatography on phenyl-Sepharose, Q-Sepharose and Mono-Q.  The enzyme
      was purified 25-fold and was obtained in 15% yield.  The enzyme showed
      optimal activity at pH 6.5-7.0 and 50 deg.  The half-life was 22 days at
      23 deg.  The mol.wt. was 41,000 (gel filtration) and the pI was 4.70.  Km
      values were 227-228 mM for xylose, 0.021-0.0236 for NADPH and 0.060-0.078
      mM for NADH.  For coenzyme regeneration, formate-dehydrogenase
      (EC-1.2.1.2) from Candida boidinii could be used.  A charge
      ultrafiltration membrane-enzyme reactor (ChUFER) was developed
      that allowed the retention and continuous regeneration of free NAD(P)H.
      For simultaneous production of glucuronic acid and mannitol, more than
      150,000 coenzyme regeneration cycles were possible.  Xylitol was produced
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by linking xylose reduc[redacted]n to oxidation of formic acid ucose or even xylose in the **ChUFER**. (18 ref)

L4 ANSWER 2 OF 2 BIOTECHDS COPYRIGHT 2003 THOMSON DERWENT AND ISI
AB Some results of studies on continuous cofactor (coenzyme) regeneration were presented. The enzymatic synthesis of mannitol (or sorbitol) and gluconic acid from glucose-fructose mixtures was studied in a 70 ml charged ultrafiltration membrane enzyme reactor (**ChUFER**). At this scale, rejection coefficients for NADH of over 99% and cycle numbers of over 150,000 were achieved. The latter figure may reach over 500,000 by increasing enzyme concentrations. NADP(H) retention coefficients of over 99.9% were measured; coenzyme costs were therefore no longer an economical problem. This approach was applicable to the synthesis of sorbitol, xylitol, maltitol and some aromatic alcohols by using unspecific NAD(P)H-dependent aldose-reductase (EC-1.1.1.21) enzymes from Candida sp. The **ChUFER** concept was also suitable in some NADP-dependent steroid transformations. The **ChUFER** works well even in the presence of organic solvents. The **ChUFER** concept of coenzyme regeneration allows the use of all enzymes with their native coenzymes; there are no problems with immobilization yields and neither a decrease of Vmax nor an increase of Km can occur. (30 ref)

=> dis his

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L1 962 S KULBE, ?/AU
L2 38 S L1 AND COFACTOR
L3 15 DUP REM L2 (23 DUPLICATES REMOVED)
L4 2 S CHUFER

=> log h

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 NEWS  3  Apr 09  BEILSTEIN: Reload and Implementation of a New Subject Area
 NEWS  4  Apr 09  ZDB will be removed from STN
 NEWS  5  Apr 19  US Patent Applications available in IFICDB, IFIPAT, and IFIUDB
 NEWS  6  Apr 22  Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS
 NEWS  7  Apr 22  BIOSIS Gene Names now available in TOXCENTER
 NEWS  8  Apr 22  Federal Research in Progress (FEDRIP) now available
 NEWS  9  Jun 03  New e-mail delivery for search results now available
 NEWS 10  Jun 10  MEDLINE Reload
 NEWS 11  Jun 10  PCTFULL has been reloaded
 NEWS 12  Jul 02  FOREGE no longer contains STANDARDS file segment
 NEWS 13  Jul 22  USAN to be reloaded July 28, 2002;
                  saved answer sets no longer valid
 NEWS 14  Jul 29  Enhanced polymer searching in REGISTRY
 NEWS 15  Jul 30  NETFIRST to be removed from STN
 NEWS 16  Aug 08  CANCERLIT reload
 NEWS 17  Aug 08  PHARMAMarketLetter(PHARMAML) - new on STN
 NEWS 18  Aug 08  NTIS has been reloaded and enhanced
 NEWS 19  Aug 19  Aquatic Toxicity Information Retrieval (AQUIRE)
                  now available on STN
 NEWS 20  Aug 19  IFIPAT, IFICDB, and IFIUDB have been reloaded
 NEWS 21  Aug 19  The MEDLINE file segment of TOXCENTER has been reloaded
 NEWS 22  Aug 26  Sequence searching in REGISTRY enhanced
 NEWS 23  Sep 03  JAPIO has been reloaded and enhanced
 NEWS 24  Sep 16  Experimental properties added to the REGISTRY file
 NEWS 25  Sep 16  CA Section Thesaurus available in CAPLUS and CA
 NEWS 26  Oct 01  CASREACT Enriched with Reactions from 1907 to 1985
 NEWS 27  Oct 21  EVENTLINE has been reloaded
 NEWS 28  Oct 24  BEILSTEIN adds new search fields
 NEWS 29  Oct 24  Nutraceuticals International (NUTRACEUT) now available on STN
 NEWS 30  Oct 25  MEDLINE SDI run of October 8, 2002
 NEWS 31  Nov 18  DKILIT has been renamed APOLLIT
 NEWS 32  Nov 25  More calculated properties added to REGISTRY
 NEWS 33  Dec 02  TIBKAT will be removed from STN
 NEWS 34  Dec 04  CSA files on STN
 NEWS 35  Dec 17  PCTFULL now covers WP/PCT Applications from 1978 to date
 NEWS 36  Dec 17  TOXCENTER enhanced with additional content
 NEWS 37  Dec 17  Adis Clinical Trials Insight now available on STN
 NEWS 38  Dec 30  ISMEC no longer available
 NEWS 39  Jan 13  Indexing added to some pre-1967 records in CA/CAPLUS
 NEWS 40  Jan 21  NUTRACEUT offering one free connect hour in February 2003
 NEWS 41  Jan 21  PHARMAML offering one free connect hour in February 2003

 NEWS EXPRESS  January 6 CURRENT WINDOWS VERSION IS V6.01a,
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               AND CURRENT DISCOVER FILE IS DATED 01 OCTOBER 2002
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